JOURNAL
OF AMERICAN INSURANCE

OCTOBER, 1960 Vol. 36 No. 10

A Fire to be Remembered

Salute to the School Patrols

Our Long, Stout Arm of Security

Bowling: Now a Billion-Dollar Sport

Last Trip for 37,800 People

This Is 'Poetry' to Skydivers

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New York State Department of Commerce

OUR COVERS

NO SYMBOL OF LIBERTY, freedom and welcome shines brighter this October than the Statue of Liberty on the New York skyline *(front cover)*. For 74 years this "mighty woman" has stood thus, ever since her dedication on October 28, 1886. Nearly 900,000 visitors a year pay respects to her as one of the top five of New York's sightseeing attractions. Untold millions more behold her from the decks of ocean-going vessels moving in and out of the harbor and the sightseeing ships skirting around Manhattan Island.

Appropriate ceremonies will be held October 28 at the statue *(back cover)*. This is done annually. Since 1924 the great lady has been a national monument.

Miss Liberty stands on grounds hallowed with the spirit of insurance, for she is within the high walls of old Fort Wood shaped as an 11-point star and originally erected in the early 19th century to ensure the defense and protection of New York. ⊙

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THE FIRE THAT MOBILIZED

PREVENTION

ROBERT CROMIE is author of *The Great Chicago Fire*, the book that put the commemorated fire of National Fire Prevention Week into the headlines of best-seller lists. A Chicagoan since 1937, when he joined the *Chicago Tribune* staff, he spent a year and a half in research and writing to make *The Great Chicago Fire* an unforgettable hour-by-hour history of the holocaust. Now in his career as *Tribune* reporter, war correspondent, sports writer and magazine author, Mr. Cromie is editor of the *Tribune's Magazine of Books*.

National Fire Prevention Week, proclaimed annually by the President of the United States and the Governor-General of Canada, is the full calendar week each year which includes October 9, anniversary of the fire. The week has been so observed since 1922, but it originated as Fire Prevention Day in 1911 on the 40th anniversary of the disaster.

By ROBERT CROMIE

THE GREAT CHICAGO FIRE began in a cow shed on the west side of town on Sunday evening, the eighth of October, 1871, and raged unchecked for slightly more than 24 hours.

It left only black and smoking ruins over an area of about four square miles as it destroyed 17,500 buildings, made 100,000 persons homeless, and did damage estimated at $200 million. One hundred and twenty bodies were found in the nightmare days that followed, although other Chicagoans certainly perished during the wind-driven holocaust, which created temperatures so high that iron was liquefied.

The disaster, which aroused the sympathy of the world, bankrupted score upon score of Chicagoans, and sent more than 50 insurance companies reeling into oblivion, unable to pay their losses with more than a percentage on the dollar. Oddly, Lloyds of London, which has become famous for its willingness to insure virtually anything, came off unsinged. A year before the fire that concern had refused to cover Chicago property because of the excessive risk.

Why the fire spread so swiftly is easy to determine, although

The Fire That Mobilized Prevention

the origin of the spark which started the first flame in Mrs. Catherine O'Leary's immortal cow barn cannot be decided. Though it seems impossible that a repetition of the Chicago fire on so vast a scale ever can occur, the tragedy has lessons aplenty for Fire Prevention Week. "Don't Give Fire a Place to Start," the theme of this year's observance, is a grim reminder of of what can proliferate even from a cow barn.

Chicago, that parched autumn, was almost as vulnerable to fire as though its destruction by arson were planned. The summer had been unusually dry, with only 28 per cent of the normal rainfall between July 3 and October 7. The Garden City was comprised of some 60,000 buildings of which about two-thirds were of wood, their roofs finished with highly combustible tar paper, shingles and felt. Many of the great downtown stores held floor after floor of pine shelves, stuffed with drygoods and other flammable merchandise. The business area also was dotted with hundreds of awnings of wood or canvas, large wooden signs, and flimsy wooden structures crowding up against "fireproof" marble palaces—uninsured because they were believed impregnable to flame.

Nor was the residential district better off. Board fences and sidewalks of hemlock or pine, many of them with air spaces beneath, crisscrossed the town, while there were hundreds of wooden barns and outbuildings, many of them storehouses for coal, hay, or wooden shavings used for kindling. Even the Chicago River, which separated the business and residential areas, was no firebreak. Its banks were lined with lumber and coal yards, planing mills and towering elevators, their walls bulging with grain. The river was spanned by bridges, made largely of wood, and wooden ships were moored along its length.

So the leaves came drifting down, dried by the sun, to gather in deadly little heaps against the houses and in fence corners, or to cluster unnoticed under the wooden walks. Wells and cisterns gave up a final cooling bucket and went dry. And the new waterworks in the north division, whose cornerstone had been laid only four years before, was the only pumping station there was, a fact pointed out in the annual report of the police board on March 31, 1870.

After mentioning that there were 600 fires during the year ending on that date, of which 185 were caused by carelessness, 77 by actual or suspected incendiaries, and many by exploding lamps filled with low-grade kerosene, the report went on:

"We have been earnestly endeavoring for several years past to have an extension of the fire limits. . . . There always has been much objection to this measure."

Also on the debit side was that all efforts by Fire Marshal Robert Williams to have the city's water mains enlarged or to obtain fireboats for use on the river had been in vain. There were too few hydrants, especially in the business section; automatic alarms were not yet completely installed, and many street ends were rented for private use, thus blocking off the river from access by fire hoses and eliminating a potential source of water.

Perhaps the frequent tolling of the fire bells had made Chicagoans immune to worry when they should have been alarmed. Hose was in short supply, the department's 185 men overtired, and the equipment in need of repairs.

First Flames Gained Unhampered Headway

Even a tremendous fire on October 7 seems to have been taken in stride, although it swept 20 acres in the west division, cost one life, and destroyed property valued at $750,000. More of the precious hose burst in that fire, the weary firemen grew more fatigued, several fire-alarm wires were melted, and one of the 17 steam fire engines was badly damaged. Contemporary writers have said that this conflagration would have been called the great Chicago fire, if a greater one had not come along a few hours later.

When the O'Leary barn started burning, Marshal Williams, who had directed the battle against a brief south side fire a short time before, was in bed and asleep. The fire was seen from the lookout tower atop the courthouse, but perhaps because of the still smoking debris from the previous night's west division blaze, Mathias Schafer, the lookout, called for the wrong box to be "pulled." This gave the flames time to

spread before organized opposition arrived, and in short order they were driving toward the northeast, aided by an ever-increasing wind which soon reached near-tornado proportions. Startled firemen soon found that whirling brands were starting new fires behind them while they still fought the main blaze in front.

So swiftly did the fire grow, that it leaped across the river into the business section about midnight, a little more than three hours after it began. By 2:12 a.m. the hands of the courthouse clock slid down its face, and three minutes later bell and tower went crashing into the basement.

By this time the entire city was awake. Most of its residents were in motion, fleeing the real or imagined danger—depending on where their homes were located—on foot, in carts and carriages, on horseback or in wagons pulled by anxious husbands or fathers. The roaring of the fire and the screaming of the wind mingled with shouts and the thunder of falling walls.

Some men hastened to business places or offices to see what could be salvaged, and a few of these were trapped by the flames and died. Thieves were abroad, snatching property from passing carts or breaking into stores and homes abandoned by their owners. People saved strange things: an empty bird cage, boxes of cigars, a basket full of freshly-washed clothes, a pack of cards. Pianos, silverware and other valuables were buried in backyards. Draymen—for the most part—charged unbelievable prices for hauling household goods away from the onrushing flames, and sometimes dumped them all a few blocks distant, then carried another man's goods to "safety."

Many families were trapped in the north division by the flames, and fled to the lake front. There they stood in the lake for hours, dashing water over themselves, or burying the young and the weak in the sand, with only breathing space left, so that the sparks would be kept away. Some tried to save their homes, but few succeeded. The O'Leary home, a modest frame dwelling on DeKoven Street, ironically enough escaped with minor damage, although, as Pat O'Leary later complained, the firemen refused to waste time squirting water on it after asking whether it was insured and finding that it was not.

There were other complaints against the firemen, but for the most part they fought magnificently in a doomed cause, even after the waterworks roof caved in shortly before 4 a.m. Few of them quit the fray until all hope was gone, and many risked their lives at close quarters to save property, human life or to draw some endangered steam engine away by hand when horses could not be brought up.

Firemen Finally Won With Help of Rain

The major fear of the fire department officials and of all Chicagoans living west of the river was that the wind from the southwest might shift, driving the flames westward and wiping out the remainder of the town. But shortly before midnight the rains came, a most welcome arrival, even to the homeless who had no protection against the chilling drops. The last house on the north side burned early Tuesday morning. By that time food and other supplies had begun to arrive from Cincinnati, New York, Detroit, St. Louis and many other cities, and dazed Chicagoans already had begun to talk about rebuilding. But there were added troubles to come.

So vast was the scope of the disaster that more than 50 insurance companies went into liquidation, including 14 of the 20 Chicago concerns. Total claims were in the neighborhood of $88 million, of which something like $45

Here, at O'Leary's, is where the fire started, but the origin of the flame that lit the blaze in the cow barn has never been established. The house, here shown from the street side, escaped with minor damage. Fuel for the rapid spread of the fire was plentiful in board fences and "air-ducted" walks of hemlock or pine crisscrossing town. Combustible, too, was the business area.

million eventually was paid. In all, more than 250 insurance firms had claims against them for losses from the fire. These ranged from $3,000 against the Columbia Insurance Company of New York, which paid off, to many claims of more than $1 million (others up to $6 million) against companies which returned only a small ratio of the amount due, then had to go out of business.

The Continental of New York had a close call. Its net assets were $1,870,297 and its claims $1,800,000. It announced that it would pay in full. Another company, Republic of Illinois, assessed its stockholders to make up the difference between the $3 million worth of claims and assets of $953,771. The home companies, as might be expected, were the hardest hit. Seven had claims totaling more than $2 million each, and none of these could pay in full. One, appropriately named the Chicago Firemen's Insurance Company, had assets of $240,742 as of January 1, 1871, and paid four cents to the dollar on losses of $6 million.

Fire's Lessons Transformed Insurance

Some of the firms sent adjusters in with exemplary promptness, and claims were quickly paid. One claimant (and probably more) collected in full on the basis of his and his insurance agent's memory of what was covered by the non-existent policy, all copies of which were burned.

Elias Colbert and Everett Chamberlin, in their book, "Chicago and the Great Conflagration," had this to say, in 1871, about the insurance situation:

"The managers of the insolvent insurance companies have been severely blamed, and not without reason. It was their business to provide against just such a contingency as that presented by the Chicago fire, though not to anticipate it as likely to occur. Insurance is good for nothing unless it be an absolute protection to the insured, and those companies which have proven themselves equal to the test will assuredly have no reason to regret the outlay."

Unmerited faith in the fireproof qualities of some of the city's buildings proved costly. The Chicago Tribune's "fireproof" structure was attacked from the roof and from the side, where iron shutters were missing, and was damaged to the tune of more than $200,000. The post office and customs house, also "fireproof," was wrecked when the intense heat caused columns and girders to warp and the floors to collapse. The furniture burned, and second-floor vaults fell into the basement, springing open so that $1,300,000 in currency was destroyed. Neither the Tribune building, nor the city's $470,000 "fireproof" courthouse, which was completely wrecked, was insured.

As is usually the case after a catastrophe of such proportions, there were belated efforts made to lock the stable door. Joseph Medill, publisher of the Tribune, ran for mayor on a "fireproof" ticket, and was elected. And the following February a new 10-page building and fire prevention code was adopted, which, among other things, extended the fire limits and provided penalties for failure to comply with some of its provisions. Many of the penalties seem laughably lenient now.

A building department was established for the city in 1875, whose duties included the enforcement of all fire ordinances, checking on the storage of combustibles, arrangement of heating appliances, engines, boilers and forges, and the investigation of the cause and origin of fires.

The great Chicago fire had become a part of history, but its memory remained as bright as the flames that went rolling through the midnight sky, roaring like the ocean surf and covering the city with that lethal red "snow." ⊙

EDITOR'S NOTE: Insurance "grew up over night" following the fire and has long since attained the stature and resources that would make a similar catastrophe to companies practically impossible. Proper rating credits on buildings have fostered both better construction and protection. Fire-resistive construction is the standard rather than the exception. Company risks are spread geographically, rather than concentrated as was the case in Chicago. Distribution of risks, a fundamental principle of insurance, is further vouchsafed through reinsurance whereby companies, with billions in assets, agree to share certain liability on a prearranged basis. Today the public and the atomic industry are even protected by three nuclear energy insurance "pools" created by the insurance industry against the event of a nuclear incident. Financial reserves of individual companies, in total, are at an all-time high. Today the likelihood of a single catastrophe wrecking any one insurance company or group of companies is as improbable, if not impossible, as 200 years of American insurance experience and virtually inexpungeable financial resources can make it.

National Safety Council

Some 19 million youngsters—on bicycle and on foot—are guided each school day across intersections by responsible young safety leaders.

SENTINELS OF SAFETY

For 40 years, School Safety Patrol members have been saving the lives of their fellow students.

A SMALL, PLAYFUL GROUP of youngsters on their way to school in Derby, Connecticut, approached a busy intersection where they were greeted and stopped by Gladys Troiano, 12, a member of the school safety patrol.

A traffic officer, after signaling vehicular traffic to a halt, motioned Gladys to lead the youngsters across the street. As she and the children stepped off the curb, the alert young patrol leader noticed an approaching auto which appeared unlikely to stop. Gladys, with arms outstretched, forced the children back onto the sidewalk, narrowly eluding the speeding car.

For her quick thinking, Gladys, along with a group of other safety patrol members from throughout the country, was awarded the American Automobile Association's annual Lifesaving Award this year by Vice President Nixon.

Gladys is just one of 775,000 young boys and girls who guide more than 19 million school children safely across intersections in 15,000 communities in all states.

The effect that these dedicated young people have had in lowering the child pedestrian death rate is impressive, to say the very least. Since 1920, when the first school safety patrols were formed under the sponsorship of the American Automobile Association, the traffic accident death rate of youngsters between the ages of 5 and 14 years has been reduced 86 per cent while the pedestrian death rate of all other age groups has nearly doubled. Vehicle registrations, mean-

while, have skyrocketed to almost 180 per cent compared with the 1920 figures.

Patrols in the Indiana-Illinois territory, where the program was early in starting, are credited with saving an estimated 15,500 young lives. This two-state area last year boasted of 2,900 public and parochial elementary schools with accident-free pedestrian records.

Forty years ago, when the patrol program was first proposed, police departments, safety organizations and school officials were trying to map out a plan to combat the sharp increase in child pedestrian deaths. That year, 1920, in Chicago alone, nearly 200 school children were killed by automobiles.

Idea Expanded Into Broad-Scope Program

Charles M. Hayes, late president of the Chicago Motor Club, an affiliate of the AAA, suggested that properly trained school youngsters could aid smaller children in crossing at school intersections. The idea was quickly accepted, and under the guidance of Hayes, the motor club has since spent more than a million dollars in support and sponsorship of the program.

From a handful of young patrol boys, the organization has ballooned to its present size and scope, which today includes not only the direction of pedestrian traffic, but the maintaining of order in school corridors, playgrounds, lunchrooms, buses and locker rooms. A handbook and rulebook outlining duties are issued to each patrol boy and girl.

Safety patrol members must report to their posts at least 15 minutes before school opens and remain 15 minutes after it closes. In most cases, members are not allowed to direct vehicular traffic. Their functions are to instruct, direct and control their fellow pupils in crossing streets and highways and to assist teachers and parents in the instruction of school children in safe pedestrian practices.

If a patrol member is faced with the problem of a school show-off or bully and can't handle the situation alone, he makes out a report to the patrol's faculty adviser who usually settles the trouble in quick order with a long, stern talk with the troublemaker.

Patrol members are selected from the upper grade levels—usually not below 5th grade. Youngsters who have shown qualities of leadership and reliability are recommended by their teachers to the faculty adviser. Parental consent must then be obtained in each case. No children are forced to take patrol duty. Most youngsters, however, jump at the chance to serve.

Size of the patrols is determined by the number of intersections in the school area which need crossing supervision. Each patrol normally has a captain, lieutenant and sergeant to supervise and make reports on the other members. The average tenure for safety patrol members is at least one school year.

A prominent safety official, J. J. Cavanagh, president of the Chicago Motor Club, said that educators throughout the country regard the patrol movement as a safety educational tool, as well as a means of developing character and creating useful young citizens. Cavanagh feels that youngsters are dependable and capable

Faculty advisers play important role in helping to prepare members of the patrols for school crossing duties.

American Automobile Association

Student safety patrol captains make a daily inspection of posts and discuss problems with fellow patrol members.

Chicago Motor Club

Some schools often recruit mothers to help safety patrols in direction of traffic at busiest city intersections.

Automobile Club of Maryland

of leadership if they're given the proper guidance. This guidance must come from the school administrators, with the help of the AAA, parent-teacher associations and police departments.

Insurance associations are also working actively to help solve the child pedestrian problem and are staunch backers of the school safety patrols. The National Association of Automotive Mutual Insurance Companies, the Association of Casualty and Surety Companies and the National Association of Independent Insurers were all represented at the National Safety Congress which agreed upon a set of principles to aid educators, engineers and police in developing a school traffic program.

Included among the recommendations are that safety patrols should not be permitted to direct traffic; adults assigned to school crossings and school safety patrols should not relieve children of all crossing responsibilities, for overprotection retards development of children's safety habits; and where natural gaps in vehicular traffic are not great enough to permit children to cross in a safe and orderly manner, police traffic authorities, not the safety patrols, should be responsible for providing gaps.

Patrols Can Have Insurance Protection

Insurance policies are available covering school children enroute to and from school, and patrol members are just as eligible for accident benefits as the children they guard. A few areas authorize the expenditure of school funds to purchase the insurance coverage for patrol members.

One of the questions most often asked by parents and school administrators is whether patrol members can be held liable if a youngster is injured in a traffic accident. No student injured in a pedestrian traffic mishap has ever claimed damages in any court of record from a safety patrol member or from a school operating a patrol program.

Several states which have statutory authority for the operation of street traffic patrols provide that there shall be no liability for accidents against the patrol member or the school. Minnesota, for example, maintains that non-liability of the school districts and school employees extends to pupils, whether a member of a safety patrol or otherwise.

In addition to Minnesota, the four states of New Jersey, New York, Pennsylvania and Wisconsin have similar laws stating, in effect, that no student pedestrian liability shall attach either to the board of education or an individual director, superintendent, teacher or other school authority where a safety patrol program is maintained.

Since the program's founding, some 12 million patrol members have repeated the pledge:

"I promise to do my best . . . to report for duty on time; perform my duties faithfully; strive to prevent accidents, always setting a good example myself; obey my teachers and officers of the patrol; report dangerous practices of students, and strive to earn the respect of fellow-students."

These young people have been living up to this pledge since the day the first patrol leader strapped on his white safety belt. The program has developed to where it is now considered a vital arm of traffic safety, insuring the lives of millions of children and earning the respect and gratitude of the entire country. ⊙

Police departments encourage the safety patrol movement and consider it as excellent training for young people.

Chicago Motor Club

One of the primary functions of safety patrols is to instruct youngsters how to cross safely at unguarded corners.

Citizens Traffic Safety Board

Similar to our safety patrols are the Junior Police of South Korea, started there by our own U. S. Military Police.

National Safety Council

OUR 'WAY OUT OUTPOST OF SECURITY

Thule Base, neighbor to the Russian heartland, was safely built amid many perils.

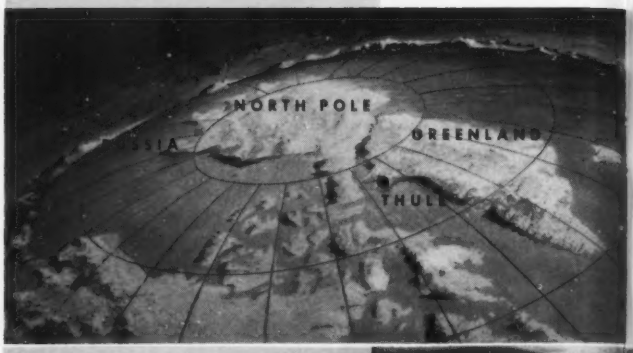
IMAGINE FLYING the Empire State Building at the end of a stout kite string in a hurricane wind with the temperature at 40 degrees below zero and you have a rough simile of a feat accomplished in building Thule Air Force Base in Greenland.

There was one job, in fact, in which a steel tower almost as high as the 1,250-foot Empire State Building was erected on the base in seven weeks with the possibility of 125-mile-an-hour winds plaguing the workers. The illusion of kiteflying could be conjured up by the tag lines which had to be kept on the steel while it was hoisted and placed on the tower. Atop the Empire State Building there is a 50-mile view on a clear day; on the Thule tower, clouds often separated the men from seeing the ground under their feet. And when storms and the hurricane-force winds threatened, the crew had only an hour's warning from an Air Force weather station in which to tie down its equipment and get off the tower.

Even so, that particular job would have finished with a perfect safety record except for one man who slipped and bruised a rib the day before he went home.

From beginning to completion, this U. S. outpost extraordinary, farthest north of our military stations, posed one of the world's most difficult engineering jobs. Yet it was brought off as one of the safest on record. As a principal participant, mutual insurance shared in the tribute paid by General Hubert Harmon, speaking for the Air Force, when he said, "Thule represented the ultimate in co-operation between the military, industry and American labor."

Thule stands now in a dominating position over the heartland of Russia, only a few hours away by jet bomber. Of tremendous strategic



Long-secret "Operation Blue Jay" for the erection of the Thule base, most northerly in U. S. system, was one of world's toughest engineering jobs but withal one of safest on record. Mutual insurance know-how was vital.

Witness of the adverse climatic conditions at Thule is the glacier in the background, one of the biggest that spawn the icebergs which break away to become floating menaces to shipping in the North Atlantic Ocean.

Before brought to the site, the army of carefully selected workers was drilled at a Minnesota camp on how to live, work and survive in the Arctic. Mutual insurance engineers were on constant duty in behalf of safety.

Thule is an all-weather, year-round air station with 10,000-foot runway. The long diagonal structure at right foreground shows framework for covered highways, making transportation independent of snow, wind and ice.

Radar reflectors at the upper right, both football-field size, are a feat in loss-prevention construction made possible by painstaking pre-planning and errorless procedure. Air Force officials acclaim the Thule record.

importance, the base combines a full-scale, year-round air station and a 10,000-foot runway with a ballistic missile early warning system (BMEWS). It thus can provide not only radar warnings of missiles or hostile aircraft, but can mount aircraft to intercept them. The base also is a vital operational link in the North American Defense System (NORAD), which maintains an elaborate defensive and retaliatory network along North America's aerial frontiers that are 15,000 miles long and extend into the stratosphere.

Four major U. S. contractors built the sprawling base, costing more than $300 million, under the name of North Atlantic Contractors. They were Peter Kiewit Sons Co., Inc.; S. J. Groves & Sons Co.; Condon-Cunningham, Inc.; and Al Johnson Construction Co., Inc. The Corps of Engineers represented the U. S. government. Liberty Mutual of Boston was the insurer on workmen's compensation.

The Thule site alone was forbidding for a successful engineering project at whatever cost of human comfort, much more so for an exemplary safety record. The barren Greenland valley, 12 to 14 miles long and a couple of miles wide, is anything but a garden spot. It has the most adverse climatic conditions of bitter subzero temperatures ranging as low as 40 degrees below, hurricane-force winds, ground frozen 100 feet down in winter and thawed to mud a foot deep in summer.

The "Empire State" feat was only one of several in the building of the base. On another job, riggers raised sheet steel for fuel tanks in winds of gale velocity with a record of only one lost-time accident in 60,687 man-hours. A force of drillers finished 23,316 hours without accident or incident. During the construction 200 million pounds of dynamite were exploded without serious accident, and not a single case of disabling injury from frostbite marred the record.

In a stretch of one year alone, more than

5,000 men completed 8,600,000 man-hours with an accident frequency record 75 per cent better than the national average for construction work in the states. The accumulated accident frequency up to the end of mid-1960 was 8.06 per 1 million man-hours, as compared with the industry average of about 33 to 36.

What the Thule safety feats saved in lives, distress and suffering can never be measured or evaluated. But what is inscribed to the credit of all concerned is a saving of nearly a million dollars in insurance premiums returned by the workmen's compensation insurer, Liberty Mutual.

Commenting on the project, S. Bruce Black, then president and now board chairman of Liberty, said: "This remarkable saving of life and property resulted from the 100 per cent co-operation and active interest on the part of the builders in the safety methods of insurance loss-prevention engineers. It proves that preplanning can drastically reduce accident potentials, even under the worst weather conditions."

Preplanning began when the project was still in the blueprint stage and under the tightest security regulations. This was "Operation Blue Jay," the code name for Thule until security was lifted. Only a handful of the contractors, insurance engineers and supervisory foremen knew what the project was or where the men were going. . . . And only the most fit men made it. An extensive pre-employment physical examination eliminated bad medical risks and those who showed any indication of emotional instability or neurotic tendencies.

Here, in a Minnesota camp, workers selected for the Thule project were safety-trained by the insurer and contractors.

In the first two years, 10,000 to 12,000 employees were sent in shifts, as recruited, to a disused army base at Rosemount, Minnesota. There Liberty Mutual loss-prevention engineers headed by Roy Woodworth and aided by four trained North Atlantic Contractors' assistants had set up a safety school to train the labor force for work in what could only be revealed as a "subnormal winter clime."

Mass Training Program Prepared Workers

But no secrets of what they were going to be up against were withheld from the workmen in a four-day safety indoctrination. They were coached on how to dress—not by weight but by layers; on the vital importance of wearing gloves and sunglasses; on arctic hygiene; and survival techniques. They were instructed on precautions against snow blindness, falls, frostbite and other arctic hazards. And they were taught basic principles of fire prevention and fire control, because the destruction by fire of isolated arctic living quarters could easily result in death.

Supervisors and foremen got a longer, five-day program on their responsibilities in loss prevention, on which both the safety and the lives of the men would depend.

Prior to this mass training program, Liberty Mutual engineers had worked out the details with project management officials. Finally, before work actually started, each division superintendent was fully briefed.

With the first advance group that went to Greenland in June, 1951, there was a highly expert Liberty Mutual team of three—an engineer, a stevedoring specialist and a claim adjuster. "We had more than an underwriting interest in Thule," Chairman Black said. "We were only about 900 miles from the North Pole but 2,000 miles from the States. A man or machine lost through an accident was irreplaceable."

One man was lost for 12 hours. But he and many others were saved by some ingenious precautions devised by Liberty Mutual engineers against hazards in the far north. There 24-hour darkness prevails for four months of the year. Floodlights on portable towers were set up for work during the total darkness months. But

even when the sun is shining, 125-mile-an-hour snow-laden gales can cut visibility to zero and make veritable bullets out of small wind-driven objects.

Emergency shelters stocked with food and heavily anchored were set up at strategic points around the camp area. Field telephones connected these shelters to the base headquarters. A network of guide lines on firmly emplaced poles was strung out on the periphery of the base so that it was impossible for a man to grope very far without finding one of the lines.

Three men were saved by the shelters during the first winter. The one who was lost for 12 hours had started out for a radar station 15 miles from the base. As an added security measure such men checked in with the base when they reached a certain point and then checked in again when they reached their destination. This man was overtaken by a sudden storm before he reached his check-in point and for 12 hours was unaccounted for. Fortunately, he succeeded in reaching refuge in one of the shelters.

Quick-freeze temperatures were a hazard to materials as well as to men. For the safe storage of dynamite, which is unstable when frozen, Liberty engineers had to assist in locating sites well away from the camp. To prevent sleeping men from being exposed to zero-degree winds, arrangements were made for the placing of 1,000-pound concrete blocks to hold down the Atwell-hut roofs. Block-long barracks built like cold storage vaults had to be fitted with heating units assuring the utmost in fire safety.

Sound Codes Developed for Sub-Zero Work

Greatest of all hazards, as on all construction jobs and more so on this one because of the hostile climate, were the vehicles. Strict rules and careful procedures had to be established for safe use of large concrete trucks, earth movers and other heavy equipment. Pedestrian safety was a special problem. Thick, insulated headgear worn by the men muffled the sound of approaching vehicles.

Out of the experience at Thule, "they rewrote the book" on the safe use of vehicles in arctic projects and on speed and efficiency in sub-zero construction work.

An especially spectacular operation that was brought off without incident was the installation of new base insulators on the 1,206-foot radio tower. This tall tower was triangular in cross section, each of the three sides of the triangle measuring 15 feet. The new insulators to be fitted under each of the three base points were 2 feet in diameter. The tower had to be jacked up off the concrete base, held in place while guy lines were adjusted, the insulators installed, and the tower lowered back into place.

A step-by-step program was designed covering the responsibilities for even the most trivial operation. An elaborate timetable and operational procedure were devised so that each man of the crew knew where he should be and what he should be doing from start to finish. Then the men were rehearsed several times. Finally, a careful check was made on the weather likely to be encountered during the job. Nerve-racking and dangerous as it was, the whole undertaking was carried out safely and with dispatch.

Loss Prevention Was a Many-Sided Job

Throughout the Thule project, Liberty loss-prevention men were among the busiest of the personnel and fully worthy as candidates for the unsung hero honors. They showed safety films; held weekly safety meetings for supervisors, foremen and workers; placed safety material in the camp newspaper and on the camp radio; and maintained a large safety billboard that kept everyone posted on the safety record of the project. Liberty technicians drew up safety regulations for truck drivers; worked with the base security officers on fire hazards; inspected the unloading of all ships and suggested improvements to the army safety control staff; made innumerable accident analyses to determine which types were predominant and what could be done about them; and investigated all serious accidents in order to devise effective, safe working techniques. Vehicle cabs and buildings were checked frequently as a routine precaution against carbon monoxide gas. Rock dust samples from a quarry operation were sent to Liberty laboratories in Boston to determine what silicosis hazards they presented. Foam fire-extinguishing systems were installed in the 48 tanks in which gas, oil and fuel were stored.

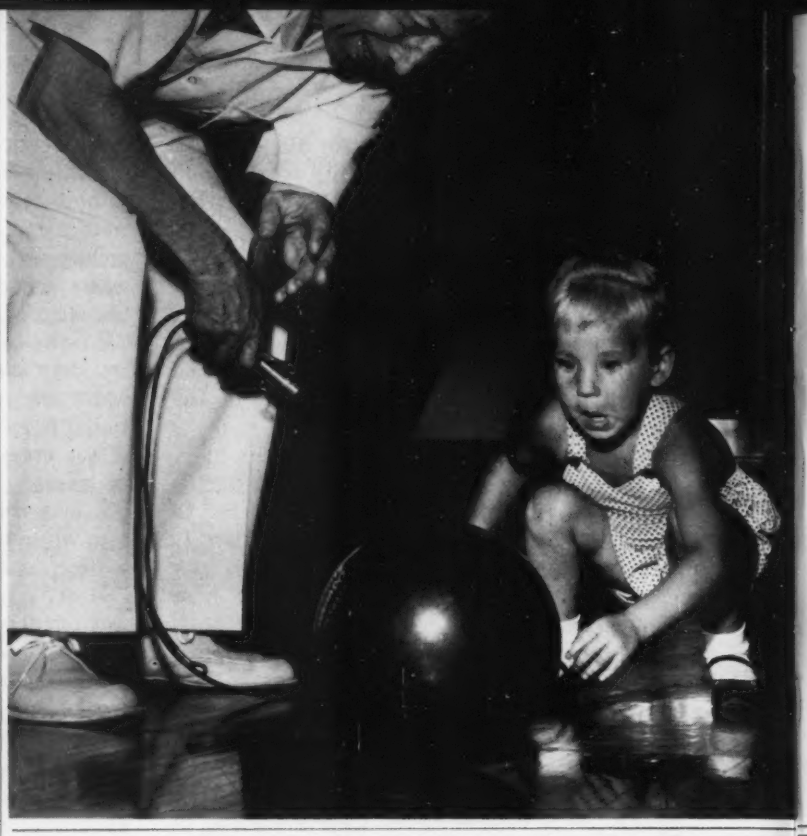
Thule is now Base No. 1 in the nation's first effective electronic warning system against a possible enemy missile attack. If it ensures safety and security for the nation commensurate with the safety which distinguished its construction, it will have fulfilled its purpose nobly. ⊙

Gus Lombardi, AMF specialist in junior bowling promotions, gives some pointers to a new recruit hardly big enough to lift the ball, much less loft it.

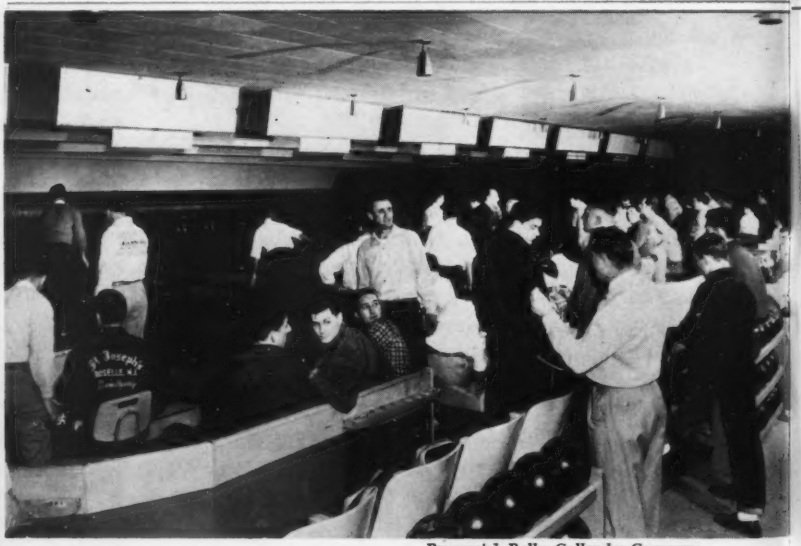
Three photos American Machine & Foundry Company

Proprietors now strive mightily to encourage togetherness on the bowling alley, with considerable success. Almost one in three bowlers is a woman.

Newer alleys have babysitters, free coffee hours, beauty shops and other attractions to bring in housewives during bowling's dull morning hours.



BOWLING:



Brunswick-Balke-Collender Company

Sixteen teams bowl once a week in a typical league at Roselle, New Jersey. League bowling season begins this month, runs for 35 weeks, and supplies most of bowling's income.

TOPS IN PASTIMES

Keglers of all ages have made it the nation's foremost participant sport.

"IT'S EASY AS PIE," the pert young redhead insisted, plumping a nine-pound bowling ball into the reluctant hands of the office team's newest recruit. "You just put your thumb in his mouth, your fingers in his eyes, and you've got it."

Following this sturdy advice, the file clerk from general office bore the ball gingerly to the foul line, delivered it onto the alley with an awkward curtsey, and squealed in surprise when it sluggishly upset four pins at the end of its 60-foot journey. She had it indeed—along with perhaps one million other Americans who will poke unaccustomed fingers into bowling balls for the first time as the sport's biggest season ever gets underway this month.

Bowling now claims 26 million devotees, ranging in age from 3 to 96, and the industry says it is the top participant sport in the country. It probably also is the fastest growing. Approximately half of today's bowlers have taken up the game since 1950, three million of them last year alone, and the number of lanes has now climbed past 96,000. Bowlers and proprietors together have pushed the nation's bowling expenditures to more than $1 billion a year.

Though its popularity has never before reached such sizable proportions, the game itself is very old. Sir Flinders Petrie, an archaeologist, found marble pins and other implements of bowling in an Egyptian tomb dating from 5200 B.C. The Romans also played a version of the game, and Martin Luther contributed the rules that standardized the number of pins at nine. The English variety, skittles, became so popular in the 14th century that King Edward III outlawed it because he felt his archers were spending too much time on beer and skittles instead of learning to hit bullseyes.

Bowling also has had its ups and downs in this country. The Dutch introduced ninepins when they settled Manhattan Island in 1623, and the Bowling Green area of lower Manhattan is a reminder of the games once played there. Although the Puritans kept it out of New England for a time, ninepins flourished in America until the 1840's, when it fell into the hands of gamblers and was banned in both New York and Connecticut.

Some ingenious proprietor circumvented the law by adding another pin and rearranging them into today's triangle instead of the former diamond pattern. Even so, bowling retained a somewhat tarnished reputation until quite recently, generally being played in saloon basements and next door to pool halls where a supply of pin boys could be recruited.

The game's return to popularity started during World War II, when thousands of defense plant workers found themselves with odd working hours, pockets full of money and no gasoline for their cars. Bowling alleys near such plants began staying open for workers coming off the 24-hour shifts, and business boomed.

It has never stopped booming since—a phenomenon which the industry attributes to several powerful influences, including the mass exodus to suburbia and the average family's growing leisure time. Another strong boost came in 1951 at Mount Clemens, Michigan, when a bowling proprietor installed the first automatic pinsetting machines and solved forever the problem of finding good pin boys. With this limitation removed, bowling establishments mushroomed into million-dollar entertainment palaces with as many as 112 lanes and a complex of restaurants, shops, bars, meeting rooms and nurseries. As one proprietor described it, "A bowling center is really a country club open to the public."

Today's bowling public includes just about

Today's bowling centers often involve investments of $1 million or more and are notable for their striking design. One even has an aviary and employs a bird keeper.

Functional beauty is matched by such fire safeguards as automatic sprinklers in this modern bowling center at New Castle, Delaware. Note under-the-floor ball return.

AMF Photos

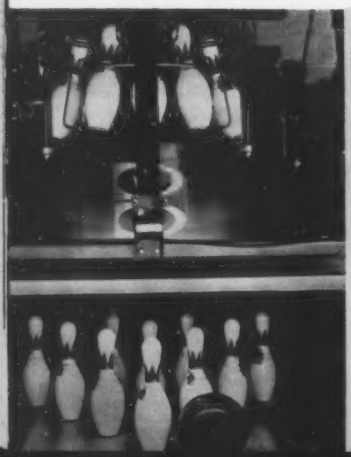
Bowling: Tops in Pastimes

everybody, from kindergarten classes and housewives to professional bowlers who earn as much as $22,500 at a time in tournaments and televised contests. The backbone of the business, however, is the organized leagues which sign up to bowl regularly throughout the October-to-May season. Sponsors of these organized bowlers are endless: Companies, civic clubs, churches and even the U. S. State Department all have regular teams.

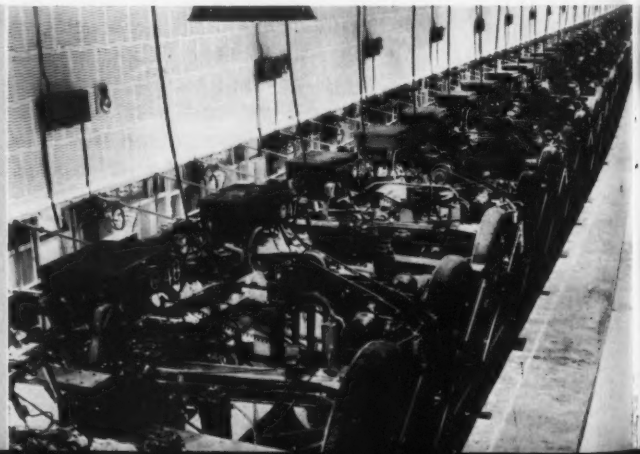
Bowling proprietors go after new bowlers with a growing array of promotional schemes, many of them aimed at women. By offering free coffee hours, free bowling lessons and babysitting services, some alleys are able to fill their dull morning hours with housewives and children. One enterprising alley, the All-Star Lanes of Skokie, Illinois, promotes leagues for juveniles, handicapped children, grandparents and even expectant mothers. The Orchard Twin Bowl, a competitor, employs a full-time sociologist to help plan birthday parties and other community activities at the alley, and the North Kansas City Bowl even has an aviary and an art gallery to upgrade the status of the game.

As a business, bowling is already big league. A modern bowling alley requires an investment of about $5,000 per lane to build the alley bed, and an automatic pinsetter costs $8,100 (some are leased). Other building and equipment costs may add another $13,000 per lane, running the total investment for a typical 40-lane bowling palace well over $1 million.

Protecting this investment requires insurance coverages against an imposing variety of special hazards, the most serious being fire. The reason is not hard to find: Alley beds are made of wood and coated with extremely flammable laquers. They have to be sanded and refinished periodically, creating a mixture of laquer particles that is nearly as explosive as dynamite. Add to these hazards a multitude of smokers in a room the size of a football field, undivided by any kind of fire wall or partition; include a large concealed attic where fire can spread undetected; install a maze of electrical wiring, and the result is enough to make a fire marshal shudder. Unless such a building has an adequate sprinkler system, it is virtually impossible for firemen to get



After each roll, the automatic pinsetter sweeps away fallen pins and resets the others. A new supply is always waiting in the turret above the strike zone (left). Pins are sorted out behind the scenes (right). Brunswick sells its machines for $8,100, AMF leases units.



inside once a fire gains headway, and many bowling alleys that catch fire are total losses. For all these reasons, bowling establishments have generally been regarded as bad insurance risks.

This attitude is now changing, largely through the fire prevention efforts of insurance companies and the bowling industry's two biggest suppliers, the American Machine Foundry Company and the Brunswick-Balke-Collender Company. Perhaps their most notable achievement has been to convince a growing number of proprietors that automatic sprinklers are a good investment. In addition, they have practically eliminated the hazards associated with pin refinishing by using plastic-coated pins. Resurfacing of the lanes has been taken over largely by Brunswick and AMF service crews who use a fire-retardant chemical on the alleys and water tanks on their sanders to douse the explosive sawdust.

Insurance company engineers are usually on hand when any hazardous work is going on. They also make periodic inspections of the heating, wiring and mechanical equipment. As a result of all these efforts, alleys in well-constructed buildings now have little difficulty obtaining insurance against fire, smoke, windstorm, vandalism and other physical hazards. Rates are drastically reduced with such safeguards as sprinklers and a modern fire roof.

If the alley includes a restaurant, the owner needs products liability insurance to cover possible food poisoning, and if liquor is served a special dram shop liability policy is needed in Illinois, Michigan, Washington and Minnesota.

AMF and Brunswick strongly recommend that bowling alleys also carry business interruption insurance to protect earnings in the event of damage that forces the alley to close for a while; plus at least $100,000 worth of public liability insurance to pay for injuries suffered by bowlers and other members of the public, and enough theft and fidelity insurance to cover both receipts and the league funds often entrusted to their care.

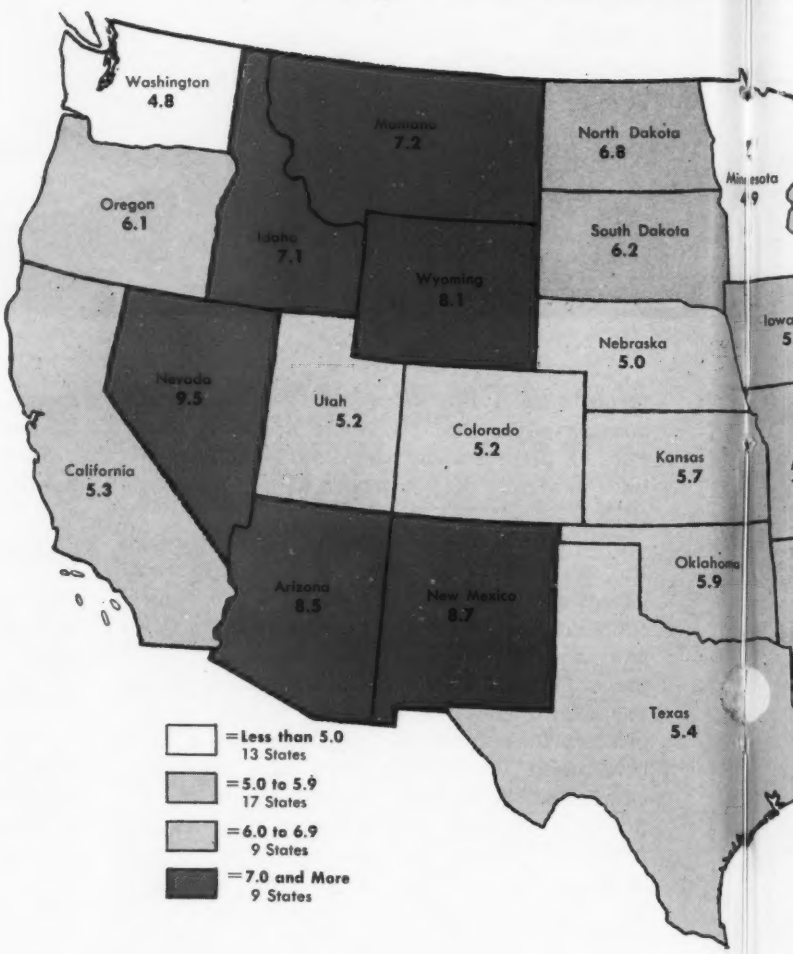
With millions of new bowlers pouring off the streets and into the alleys, proprietors are now planning a 16-team professional league similar to today's pro football and baseball leagues. One of its chief promoters, Harold Weber of Chicago, says, "You have to let your imagination run wild. Can you imagine Texas teams marching out on Palomino horses or the California teams strutting out in toreador suits, or the Chicago teams known as the 'Untouchables'?"

For a sport once played by Pharoahs, Romans, Martin Luther and Rip Van Winkle, such a prospect requires hardly any stretch of the imagination at all. ⊙

National Fire Protection Association

Fire is a special hazard for bowling alleys because of their large, drafty interiors and the flammable lacquers used on the lanes. This $190,000 blaze occurred in an unsprinklered building in New Jersey.

DEATH ON THE HIGHWAYS



It piles up claims, increases insurance rates.

MOTOR VEHICLE ACCIDENTS last year killed 37,705 persons on U. S. roads, an average of 5.4 deaths for every 100 million miles logged by the nation's 71.2 million autos, trucks and buses. These stark statistics may be matched this year because 17,090 Americans lost their lives on highways during the first six months of 1960, a total nearly equal to the 17,100 killed during the same 1959 period.

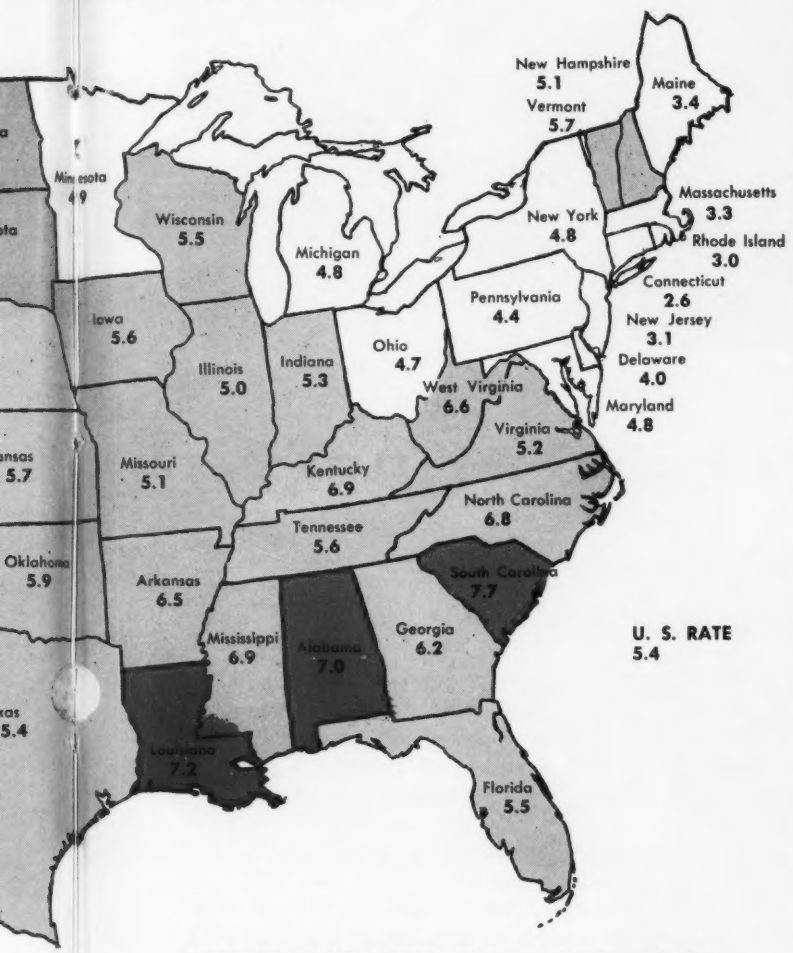
Death stalks the roads in every state, as shown on the accompanying map, adapted from the National Safety Council's "Accident Facts," which assigns a fatality rate per 100 million vehicle miles to each state.

Actual traffic deaths in each of 48 states appear in the table on the right, along with a listing of registered vehicles. Yet deaths are only part of the expensive destruction wrought by traffic accidents.

For every fatality in the first six months of this year there were an estimated 35 disabling injuries. Insurance payments for some of these injuries cost auto insurers many times the amount paid for death. Claim costs, moreover,

100 MILLION VEHICLE MILES

e deaths by states, 1959)



Sources: National Safety Council and Bureau of Roads of the U.S. Department of Commerce.

No mileage figures are available for Alaska, admitted to the Union on January 3, 1959.

include property damage which climbs with each increase in auto values and every upward twist of the inflationary spiral. Thus, death on the highways is only a small part of insurance claim costs. But to those thousands who lose loved ones each year because of recklessness on our roads, fatality statistics have heart-felt meaning and crushing personal impact.

It may be a spur to better law enforcement and safer driving to remember that if all U. S. vehicles were moving at once, they would travel only a quarter of a mile, or two city blocks, before a traffic fatality would be recorded. ⊙

State	Registered Vehicles	1959 Traffic Deaths
1. California	7,418,137	3,588
2. Texas	4,350,573	2,453
3. New York	5,011,467	2,222
4. Ohio	3,938,724	1,834
5. Illinois	3,678,322	1,795
6. Pennsylvania	4,181,656	1,685
7. Michigan	3,201,406	1,467
8. North Carolina	1,640,810	1,193
9. Indiana	1,982,609	1,125
10. Florida	2,252,745	1,113
11. Missouri	1,744,530	990
12. Georgia	1,435,859	990
13. Virginia	1,387,100	850
14. Alabama	1,220,883	831
15. Wisconsin	1,548,114	821
16. Louisiana	1,142,270	803
17. Tennessee	1,264,255	771
18. New Jersey	2,306,871	762
19. Kentucky	1,160,696	750
20. South Carolina	887,499	683
21. Iowa	1,295,931	679
22. Minnesota	1,525,012	664
23. Oklahoma	1,142,781	641
24. Kansas	1,135,657	567
25. Massachusetts	1,737,546	557
26. Washington	1,329,355	548
27. Mississippi	691,580	548
28. Maryland	1,102,258	524
29. Arizona	578,434	516
30. Oregon	877,693	492
31. Arkansas	682,450	458
32. New Mexico	446,495	455
33. Colorado	884,697	404
34. West Virginia	589,683	398
35. Nebraska	706,224	341
36. Connecticut	1,061,069	248
37. Montana	375,592	248
38. Idaho	364,047	222
39. South Dakota	348,543	222
40. Utah	401,555	205
41. Nevada	162,506	180
42. Wyoming	197,621	169
43. North Dakota	338,854	163
44. Maine	367,070	136
45. New Hampshire	251,716	122
46. Rhode Island	332,111	91
47. Vermont	149,336	89
48. Delaware	185,178	83
U.S. TOTALS	71,229,582	37,705

→ Saved from kwashiorkor, dread protein-deficiency disease which is world's most serious nutrition problem, Jose Quiroa is hope personified. Six weeks before he was too weak to sit up, his body swollen and covered with sores. All-vegetable protein mixture developed by UNICEF and Institute of Nutrition of Central America and Panama gave new life and hope to him and millions of others. Milk shipments saved many, but in long run new protein sources, education are greatest needs.

NEW HOPE FOR

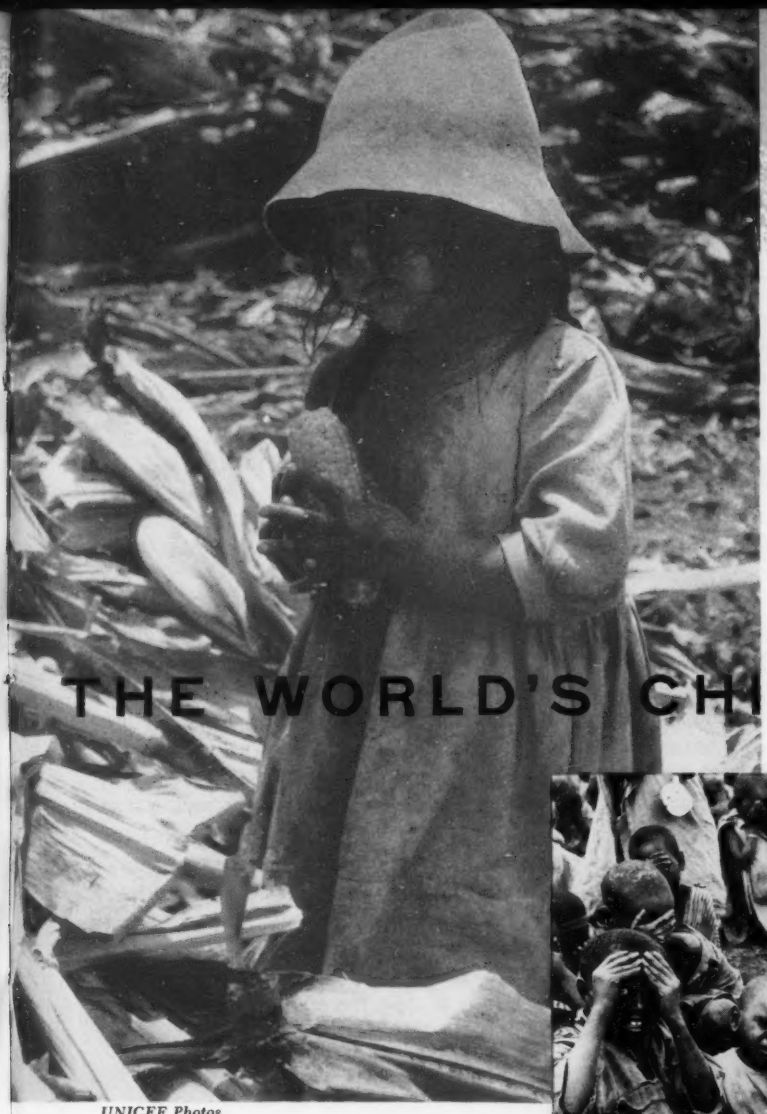
UNICEF's program for them betides a better world for all of us.

"WE ARE TOO LATE for this one," said the doctor as Luisa, a 14-year-old leprosy victim, hobbled painfully into the dark shelter of her home. "But give us another 10 years, and if we succeed with our new methods of treatment and are thorough in this project, we will never see another child like this."

Such was the doctor's report to a representative of UNICEF, the United Nations Children's Fund. And such are the reports from around the world—reports of hope born of tragedy—as UNICEF counts its progress in this 14th year of its existence. The measure of that progress is shown in part in the pictures on these pages.

Around the world hundreds of millions of persons still suffer the age-old scourges of leprosy and yaws, malnutrition and malaria, TB and trachoma. Of the billion babies born

Unlike millions before him who suffered or died through ignorance and neglect, this Malayan baby starts life with health care and hope, thanks to aid of a trained, UNICEF-equipped midwife. Joint UN-government rural health program is designed to reach every person in Malaya's thousands of tiny kampongs (villages) through district health centers, training school for personnel. Scheme must overcome native superstitions and other primitive conditions.



THE WORLD'S CHILDREN

UNICEF Photos

← Her only toy an ear of corn, this Peruvian child, unkempt and uncared for, typifies millions of world's children still in need of help and hope. Now, for first time, many are getting help thanks to 23,000 UNICEF-equipped child welfare and maternal health centers around the world. Local governments are more than matching UNICEF funds, evidence that age-old fatalistic attitudes toward poverty and disease are giving way to revolutionary new spirit of hope and concern for fellow men.

← Through the vast Sahara desert goes a medical team carrying Morocco's anti-trachoma campaign to most isolated peoples. Here government opthalmologist diagnoses early case of the blinding disease, saves child's sight with simple treatment of aureomycin ointment. Mere 20 cents given to UNICEF can supply such a treatment; 40 million people in world have sight impaired by trachoma. Long-range preventive medical care is a main UNICEF aim.

Saying grace, Kenya style, are these youngsters waiting for their daily milk ration from UNICEF. Milk, much of it U.S. farm surplus which UNICEF can ship abroad for a penny a quart, has saved millions of children from illness or death caused by malnutrition. This was UNICEF's first big job after World War II. It now seeks to build food- and milk-processing plants, develop new local sources of protein and educate people in nutrition to overcome chronic hunger in many areas.

Books take a back seat to beets, cucumbers and cabbage as first graders in Honduras begin to learn about proper nutrition. As in many underdeveloped countries, thousands go through life malnourished because they don't know any better. Now, not only mothers but children too are taught how to eat properly. UNICEF aids the education program, also sends hoes, rakes and vegetable seeds to help youngsters start their own gardens, an example of the self-help basis on which the UNICEF program works.

New Hope for the World's Children

since UNICEF began, nearly one-fourth died in infancy. Of those who survived, fewer than a fourth have escaped the dread, debilitating diseases that plague mankind. From time immemorial man has accepted this—poverty, disease and early death—as his lot.

But today more fortunate men realize for the first time in history that as long as three-fourths of the earth's children are hungry and sick, there is little hope of "making a better world." Today man has at his command surplus foods, "miracle" medicines, scientific and technological knowledge and tools that can, if he will but use them, alleviate and perhaps soon eliminate sickness and starvation. It is to this task that UNICEF, starting with the children, is dedicated.

Everyone can help, for UNICEF, which must raise all its funds through voluntary donations by UN member nations, also asks individuals to aid its work. Thousands do—children giving their Halloween "trick or treat" money, adults buying UNICEF Christmas cards or sending contributions. When one penny will send milk to five children or vaccinate one against TB, even the smallest gift is potent insurance for a healthful, hopeful world. ⊙

The "stork" comes by camel-taxi in rural Punjab, India, with a government midwife in charge. With UNICEF aiding network of government health centers, India has cut infant mortality one-fourth in 20 years. (Puerto Rico's rate dropped by half, Israel's two-thirds.) Burgeoning population makes world's health needs even greater today and in the future.

"If you go to Shan State, you've left your wife a widow," Burmese warned for centuries. "Mysterious" malady was malaria, brought under control in past 10 years by UNICEF-aided campaign. Here one mosquito-spraying unit starts out by canoe for remote area. Malaria once hit 100 million people a year in India. →

← Familiar discolored patch—leprosy—is found on this child's shoulder by Burmese doctor. Early diagnosis and sulfone treatment may save her from ravages of disease which still claims 12 million victims in world. Like other diseases, leprosy today can be helped, even cured, if drugs, doctors are brought to people soon enough. This is the goal of UNICEF.

EPITAPH FOR TIRE TROUBLE

Modern craftsmanship is turning out tires to withstand the stress of today's cars and drivers.

TIRE TROUBLE, once the No. 1 bane of American motorists, has all but disappeared. The day may soon come, in fact, when even the "spare" will be a thing of the past. For tire engineers have miraculously increased the safety and performance of tires despite the wear and tear imposed by faster, heavier, low-slung passenger cars and by sometimes careless drivers.

Even in 1959, with new record mileages, the safety record of tires improved, just as it has each year since tubeless tires were introduced in 1954. More than 70 million U. S. vehicles traveled 695 million miles last year, according to National Safety Council figures. That would be more than 2.7 quadrillion tire miles, many of them over rough roads and at high speeds.

Yet service garages surveyed by the American Automobile Association reported that only 20.16 per cent of road service calls last year were made for tire trouble, a decrease of nearly 1 per cent under 1958.

If tire trouble hasn't yet disappeared, it is waning. It ranked first for many years on the AAA list of breakdown causes, but now takes second place to battery and electrical service calls.

These modern superperformance tires owe their existence to the invention of an Irishman, John Boyd Dunlop, who patented the pneumatic bicycle tire in 1888. Several years later a tire was developed that was held in place by concave flanges of the wheel rim, the essential principle of passenger car tires today.

But today's tough tires would be impossible without the basic advance in rubber making introduced by Charles Goodyear in 1839. Goodyear perfected vulcanization, treating rubber with sulphur and heat to increase strength, elasticity and temperature resistance. The process, named after the Roman fire god Vulcan, is still used, even on synthetic rubber.

B. F. Goodrich Co. pioneered in the manufacture of auto tires in this country when it produced pneumatic tires for Winton cars in Cleveland in 1896. Since then most of the nation's tire industry has been located in Ohio, chiefly in Akron.

From laboratories and test centers operated by major tire producers have come the advances in tire design and components to keep pace with the stern demands of autos that have succeeded 1896 Wintons on U. S. roads.

Heat build-up, or hysteresis, is tires' worst enemy. Tires get hotter than they did 10 years

ago because horsepower has increased 125 per cent, cars are 10 per cent heavier and equipped with power steering and power brakes. Low tire pressure, recommended to provide smoother rides, also contributes to heat build-up.

Tire engineers have recently been called upon for "low-profile" tires which permit auto makers to achieve a low silhouette without changing basic designs or suspension systems.

Only 10 years ago nearly all original equipment tires had an inside diameter of 16 inches. Sizes shrunk to 15, to 14, and on compact models, to 13 inches. Each time tires become smaller they are subject to greater wear and more rapid heat build-up.

All Three Components of Tires Improved

The relatively young but highly competitive tire industry, which expects to sell 127 million units this year, regularly announces improvements in the three basic components of tires. They are the bead, an edging reinforced with steel wire which grips the rim; the carcass or cord, a "backbone" fabric body to which the tread rubber is applied; and the tread itself, the elastomer (or rubber) exterior that grips the road.

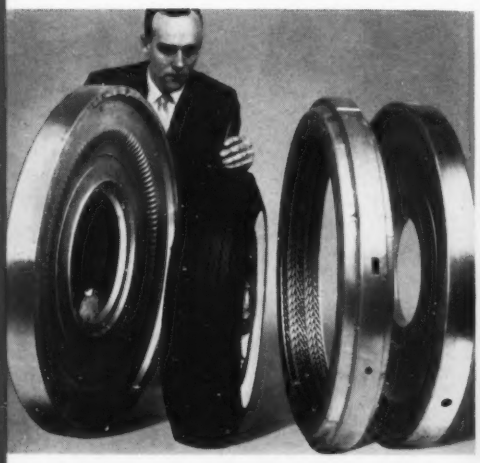
Tire beads, those parts which hold to the rim, contain bronze-coated steel wires a tiny fraction of an inch in diameter. These wires are in the rubber to cling to the rim in any emergency.

A noisy and expensive dispute between makers of nylon and rayon has enlivened the competition for the $300 million annual market in tire cord yarn. Rayon, called Tyrex when used in auto tires, is the cord yarn of all "original equipment" tires, but nylon has captured nearly half of the replacement tire market.

New Synthetic Cords Are Under Study

There are as many opinions about the relative merits of nylon and rayon as there are "experts" who comment. But nylon vs. rayon debate may be a side issue before long, just as rayon quickly crowded out cotton tire cord not many years ago. Under current consideration are tire cord fabrics called Dacron, Vycron and Terylene, synthetics of the polyester classification; Vinal, a polyvinal synthetic developed by the Japanese; and HT-1, which is, like nylon, a polyamide synthetic yarn.

1.
Tire designs start on engineers' drawing boards. Here tire sculptress June Black makes a clay model of a drawing that is accurate to 1/100th of an inch.



4.
New three-piece mold forms tread as a single unit thereby producing rounder tires. These treads provide improved grip on wet roads and on snow and ice.

U. S. Rubber Company

8.
"Uniformity sorter" tests tires' rolling resistance and roundness to accuracy of 47/1000 of an inch. Minute variation on meter brands tire as reject.

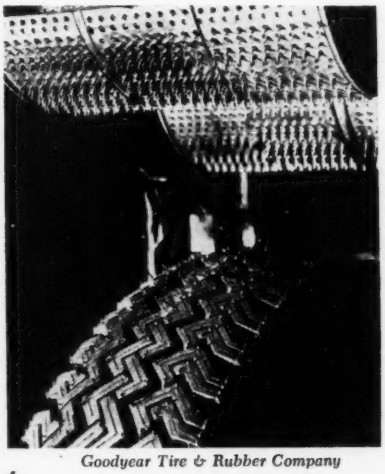
Four photos Firestone Tire & Rubber Company

2.
Separate stocks for sidewalls and tread are extruded through one die in a continuous strip. Worker checks overall width, shoulder width, weight and length. Different compounds are needed because treads must be strong and sidewalls flexible.

3.
Cylindrically-shaped tire is placed in a mold where internal pressure forces a curing bag into the tire and forms it into doughnut shape. Heat fuses parts of the tire into integral unit. Tread rubber is molded to give maximum road traction.

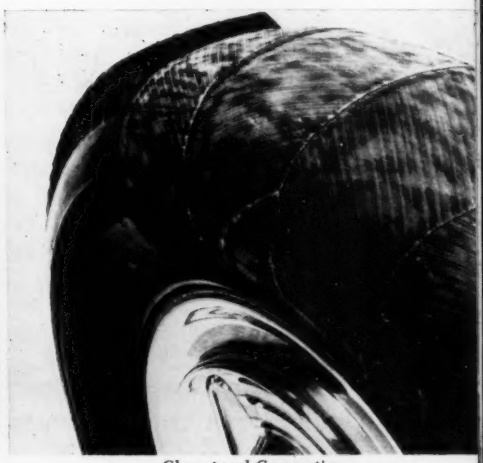
B. F. Goodrich Company

5.
Tiny durometer is used to test hardness of tread rubber. Special tires are made by varying ingredients used in synthetic rubber for tire treads.



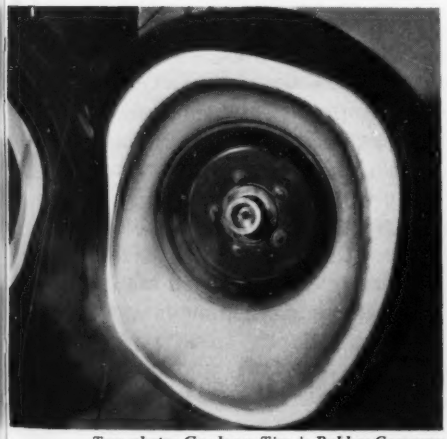
Goodyear Tire & Rubber Company

6.
Tack-studded wheels spun against winter tires produce crepe-like quality that holds to snow-covered roads. Advances in tire design reduce insurance costs.



Chemstrand Corporation

7.
Cutaway view of casing reveals the important cord "backbone" which may be made of nylon or rayon. New synthetic fabrics will make tires even stronger.



Two photos Goodyear Tire & Rubber Company

9.
Testing labs put tires through paces on "torture wheels." Tire on right leaves rim, its bead yawing wide from wheel. Most tires endure speeds up to 305 mph.

10.
Tire-on-tire test is monitored through closed circuit TV by engineer protected from danger of 500 mph speed. System, called a dynamometer, costs $2 million.

B. F. Goodrich Company

11.
Final checks of tires are made at test tracks in the Southwest where skilled drivers accelerate, turn and stop in ways that would frighten a hot-rodder.

Epitaph for Tire Trouble

Most tire experts agree that properly constructed tires with either nylon or rayon cord are adequate today, but they foresee a time in the mid-1960's when other synthetic cords will be commercially competitive.

Just as complicated as the tire cord dispute are the claims and counterclaims for rubber compounds used in tire treads. Natural rubber develops less heat build-up than most synthetic rubbers and is used on heavy truck tires, off-the-road tires and airplane tires in which hysteresis is a problem.

America's synthetic tire development, including new butyl tires made from petroleum gases, is so advanced that it is doubtful that a wartime cutoff from natural rubber supplies would affect military tire needs. An industry spokesman recently estimated that 67.5 per cent of the new rubber consumed in the U. S. is synthetic.

To make synthetic rubber developments effective, tire makers have developed tread designs to cut noise and heat and raise road gripping capacities.

Crepe-Like Tread Put On For Icy Roads

All tread designs start on engineers' drawing boards and move to sculptors who carve a precise mock-up of the blueprint to make a tire mold. Last year one rubber company patented a tread design calculated to reduce tire hum to a whisper by breaking the tread ribs with a series of blocks, slots, curved walls, knobs and other formations. The tire hum remaining is said to blend with ordinary traffic sounds.

Another tire company gives what it calls a "crepe-like" quality to its winter tires by puncturing the tread surface with thousands of little holes, each of which acts as a suction cup on ice-covered roads.

A major producer last year announced the development of a tire tread 6 per cent deeper and 13 per cent wider with a zigzag design of gripping sections placed at alternate depths for maximum skid resistance. The tire, company spokesmen said, will give up to 22 per cent more wear.

Since World War II, retreads have taken over an important part of the U. S. tire market. Retread business has grown 24 per cent each year for the past 10 years.

To keep pace with recent research developments in cords, synthetic rubber and tread designs, tire engineers have concocted an elaborate set of stringent tests for their products. Tires are usually subjected first to a series of laboratory "torture wheel" tests and then to actual tests on carefully-designed test tracks.

As tire makers look to the future, one of the boldest economy suggestions has come from the Pirelli Company of Turin, Italy, which produces a tire with three removable treads. When the treads are worn, they may be replaced at about one-third the cost of a full tire. The casing of a Pirelli tire is said to outlast three sets of treads.

Spares May Eventually Be Eliminated

U. S. makers, meanwhile, are concentrating on various methods for eliminating spare tires, a development that may come about in the mid-1960's if motorists can overcome the psychological effect of being without an extra tire.

Already on the market are tires that have dual compartment chambers with separate valves. If the outer compartment is punctured, the inner compartment will act as a crutch to carry the car to a service station.

Another approach to spare elimination is to equip tires with a reserve chamber that may be inflated with compressed gas if the outer chamber is punctured. This "safety diaphragm" is supposed to travel "many miles" after a flat.

If built-in spares become popular with motorists they will permit greater freedom of auto styling and allow more trunk storage space. More important, they will eliminate roadside tire changes, one of the greatest traffic hazards because the motorist is exposed to passing traffic.

Still Other Tire Advances Are Certain

Along with improved tire cords and treads and better compact car tires, tomorrow's motorist may look forward to solid tires filled with synthetic rubber that will never go flat.

It is certain that tire dealers and their customers will have to wrestle with an ever wider assortment of tire varieties. A firm which made only 196 types of tires five years ago now manufactures 329 in all sizes, shapes, tread styles and cord components.

But tomorrow's tires, however varied in design, are certain to be safer and longer-wearing regardless of what motorists and car designers may do to torture them. ⊙

FROM OUR ANNALS

STATUE OF LIBERTY

October 28, 1886

Commemorative emblem 1960 world marine insurance meeting in the U.S.

WHEN PRESIDENT Grover Cleveland accepted the Statute of Liberty in the name of the American people on October 28, 1886, he could not have foreseen the world scene of 1960, but he pledged a spirit which is abiding insurance for the mind and soul of America today:

"We will not forget that Liberty has here made her home; nor shall her chosen home be neglected."

Neither is Liberty Enlightening the World likely to be forgotten by the millions of immigrants who have seen the colossal statue with upraised torch as one of their first glimpses of America. And for all those who are yet to see her—or may never see her—Liberty stands peaceful and tall enough in the New York harbor to translate America for all the world.

International friendship was the motivating spirit when the idea of a monument to commemorate the French and American Revolutions originated in 1865 in the minds of a small group of French men-of-letters, artists and politicians headed by Edouard Rene de Laboulaye. One of the group, a young Alsatian sculptor, F. Auguste Bartholdi, who was delegated to visit the United States and study the possibilities of a symbolic structure, is said to have caught the inspiration for a great statue of welcome and a proud symbol for both the U. S. and France when he beheld the New York harbor.

Funds raised by the Franco-American Union, organized in 1875, included contributions from 5,000 subscribers in France, representing 181 cities and 10 municipal chambers of commerce. The French government itself was never asked for a contribution.

Bartholdi first created a nine-foot scale model for the gigantic statue which he then divided into 300 sections to be individually fashioned out of copper sheets, each section enlarged four times by the elaborate methods of "pointing up." The iron skeleton of the statue was designed by Alexandre Gustave Eiffel, the engineer who later designed and built the Eiffel Tower.

Bartholdi's chosen setting for the statue was the New York Harbor, and in 1877 Congress approved setting aside Bedloe's Island, now appropriately named Liberty Island. The base, of concrete faced with granite and standing 89 feet high within the walls of old Fort Wood, was an American contribution completed in 1886.

For the formal dedication of Liberty Enlightening the World on October 28, 1886, Bartholdi himself stood in her torch some 300 feet aloft and pulled the rope to remove the French tricolor which masked the face. The statue previously had been presented to the United States in France on July 4, 1884, and arrived in this country in 1885. Weighing close to 220 tons, Liberty herself towers 152 feet into the harbor sky atop the 89-foot base. Her left hand holds a tablet symbolizing the Declaration of Independence.

Inscribed on the base of the statue is the sonnet by Emma Lazarus, the American poet of Portuguese-Jewish ancestry (1849-1887), *The New Colossus:*

Not like the brazen giant of Greek fame,
With conquering limbs astride from land to land;
Here at our sea-washed sunset gates shall stand
A mighty woman with a torch, whose flame
Is the imprisoned lightning, and her name
Mother of Exiles. From her beacon-hand
Glows world-wide welcome; her mild eyes command
The air-bridged harbor that twin-cities frame.
"Keep, ancient lands, your storied pomp!" cries she
With silent lips. "Give me your tired, your poor,
Your huddled masses, yearning to be free,
The wretched refuse of your teeming shores.
Send these, the homeless, tempest tossed, to me;
I lift my lamp beside the golden door." ⊙

HARBORS OF HUMAN MIRACLES

Rehabilitation centers, with the aid of insurance, open new worlds for the disabled.

"Healing is a matter of time, but sometimes it is also a matter of opportunity."

—Hippocrates

AMONG ALL THE WORRIES that beset the American family—anxiety over money, strains of parenthood, fear of war and depression—there is none so pervasive as the threat of disabling sickness and injury. It hovers over every person's head and, when it strikes, the vision of the good life is blotted out.

About one in every seven Americans has had that shattering experience. Health authorities estimate that 23 to 28 million persons in this country already are handicapped because of chronic disease, permanent injury or congenital defects. Perhaps five million are so severely disabled as to be unemployable, and an additional one and a half million are absent from work on an average day because of illness and accidents. Most of the latter group recover quickly and return to their jobs following medical treatment at home or in the hospital. Those with more serious injuries are likely to receive additional care at one of the nation's newest and most promising healing institutions: the rehabilitation center.

Some 200 of these centers have now been built, a few as early as World War I. The majority, however, came into being only in the past

First step at Liberty Mutual's Boston center is a careful medical evaluation of the patient's disability. Orthopedist then prescribes a therapy program.

Center's staff meets regularly to talk over each patient's medical progress and work out ways to help him with his personal problems and job worries also.

15 years as the rehabilitation movement gained powerful support from insurance companies, philanthropists such as Bernard Baruch, and from private charities and public agencies.

A rehabilitation center is not a substitute for a hospital but a sort of halfway house for the disabled on the long road back. Generally it accepts patients who have survived the acute stages of a disease or injury, but who remain crippled because of amputations, burns, paralyzed muscles or brain damage. Some centers specialize in problems of the blind, the deaf, the mentally retarded or the emotionally disturbed; others treat a wide range of disabilities and are capable of such diverse tasks as fitting an artificial arm, restoring the power of speech, and teaching a paraplegic how to earn a living in a wheel chair.

Although rehabilitation centers make use of all the great advances in medical science, their real genius lies in a remarkable integration of healing skills—those of the doctor, physical therapist, brace-maker, psychologist, social worker and vocational counselor—all marshaled into a team effort with one sole purpose: to help the disabled person regain the greatest possible use of his physical, mental and vocational capabilities.

The job of a rehabilitation center thus goes far beyond physical restoration alone. While physical therapists set to work with hot baths, massage and exercises to strengthen atrophied muscles, other members of the team begin helping the patient, his family and his employer make practical plans for his return to a job and other normal activities. Sometimes this does the disabled person as much good as the medical care he receives. As the director of one center put it, "We find that a patient's fears, doubts and worries—particularly those involving his job status and his ability to support his family —can often form a very real barrier to his psychological adjustment, his cooperation, and even his ability to benefit from a rehabilitation program."

Since the patient's return to work is the ultimate goal of rehabilitation, most centers operate shops and gymnasiums where disabled persons can practice their old job skills or develop new ones before re-entering the labor market. Some centers exist primarily for this purpose, and a few even offer paid employment to workers unable to find or hold down regular jobs. The center's vocational counselors also

Usefulness and Ability Restored

Texas factory worker lost his left hand in a paper cutter accident in May, was sent to a Chicago rehabilitation center in July at the expense of his employer's insurance company. Treatment began with exercises for conditioning the stump.

Within a few days, he was fitted with an ingeniously designed harness that supports an artificial hand and enables him to control its movements. A shrug of the shoulder tightens the control cable and provides an unusually strong grip.

Learning to use an artificial limb requires a lot of practice, and rehabilitation centers try to make it as pleasant as possible. Competitive games provide excellent exercise, also help the patient keep his mind off his other troubles.

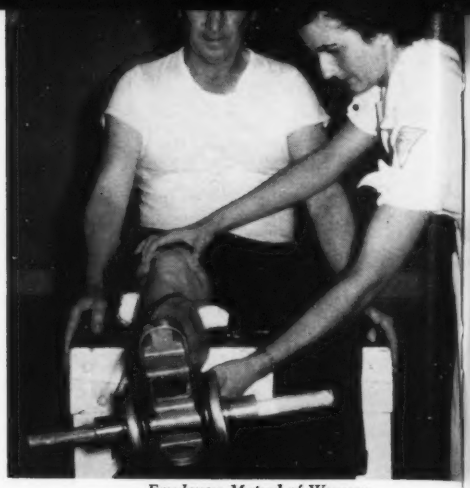
In September, after 17 treatment days at the center, the worker returned to work for his old employer as a truck driver and delivery man. He lifts 30-pound boxes without difficulty and earns a better salary than before the accident.

Liberty Mutual Photos

Curative Workshop of Green Bay

Physical Therapy Rebuilds Shattered Bodies

At the Curative Workshop of Green Bay, a physical therapist stretches sore muscles of a patient who suffered a back injury. Hubbard tank provides controlled heat.



Employers Mutual of Wausau

An industrial worker who injured his leg undergoes another type of exercise to strengthen the muscles and prevent permanent stiffness that might cause a limp.

Harbors of Human Miracles

maintain close contact with enlightened employers, contract manufacturers and organizations such as Goodwill Industries, all providing badly-needed jobs for handicapped persons. Even when the patient is unable to return to work at all, he often can be improved enough to live at home without special nursing care—an accomplishment of considerable economic as well as humanitarian value.

Demonstrating rehabilitation's economic worth, in fact, may prove in the long run to be the most powerful stimulus to its wider use. It is difficult to put a value on human suffering or to comprehend its scope, but the enormous financial costs of disability are becoming all too apparent. Private citizens now spend $15 billion a year for medical care alone. Taxpayers foot the bill for an additional $281 million in public assistance programs, and employees miss out on $2 billion in wages because of disabling sickness and injury.

Rehabilitation's Goal Is Self-Support for the Disabled

Work also is a form of therapy; sometimes it does more for the patient's peace of mind than any other help. Many centers now provide workshops to redevelop work skills.

Liberty Mutual

Some centers provide extensive vocational testing and training programs for workers unable to return to their regular jobs, and a few even offer them paid employment.

American Mutual Liability Insurance Company

East Bay Rehabilitation Center

A stroke patient who lost his ability to speak re-learns laboriously how to control his vocal cords by touch as a speech therapist forms and makes the word sounds.

The largest economic burden of all falls on the nation's employers, who lose $50 billion a year in wasted production time, benefits paid to disabled workers, and the added insurance costs imposed by work accidents and occupational diseases. In most states, employers are liable for the entire medical expenses of a work injury, and some states require them to pay monthly income benefits to a disabled employee for life. Total costs in some of these cases have exceeded one-quarter of a million dollars.

Mutual insurance companies, which underwrite a large portion of the nation's workmen's compensation benefits, have discovered that the best way to control both the human and financial burdens of these injuries is to reduce the disability through prompt medical attention, including rehabilitation when needed. Sometimes the attending physician can handle the job alone, or can call on hospitals with physical medicine departments to provide the extra help he needs. If the disability is severe and complicated, however, the insurer may ask the doctor to refer the patient to a rehabilitation center and prescribe specialized therapy.

Results of this program have been phenomenally good. One large mutual company reports 85 per cent of the injured employees it referred to rehabilitation centers have been able to return to work. In addition, their quick recovery reduced the cost of workmen's compensation payments by slightly more than $1,000 per case, even after deducting the expenses of providing rehabilitation services.

In one group of 130 workers with spinal cord injuries—regarded as hopeless only a few years ago—40 per cent were restored to gainful employment through rehabilitation, and another 45 per cent were enabled to live at home without special nursing care. The insurer estimates the net saving on this group alone was more than $3,700,000, after paying more than $1 million for their treatment. As one insurance executive put it, "Everyone gains when we spend money for rehabilitation which otherwise would be spent on compensation for a permanent disability."

Two large mutual companies operate their own rehabilitation centers, built at a time when few such facilities were available for injured workmen. Today, however, they and other insurers send patients to centers in the employee's home community whenever possible. This enables the injured person to receive the encouragement of his family, friends, employer and church at a time when he has good reason to have doubts about his future.

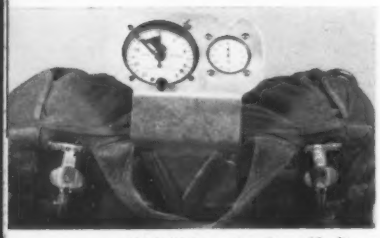
As to the future of rehabilitation centers, there appears to be little doubt that they will play an increasingly larger role in a nation that places such a high value on human worth and dignity. Insurance companies, by demonstrating that rehabilitation also has potent economic value, hope to hasten the day when its healing influence can enhance the vision of the good life for all who pursue it. ⊙

Rehabilitation Center at Los Angeles Orthopaedic Hospital has a complete kitchen for teaching paralyzed persons how to do housework most efficiently from wheel chairs.

Orthopaedic Hospital

JUMPING

Skydiving is attracting thousands of thrill-seekers each year to this new insurable sport.



U. S. Military Academy Skydivers

New safety device on this parachute will open chute at a height of 1,000 feet if rip cord is not pulled.

WHAT SOME PEOPLE won't do for fun!

For many years, sport enthusiasts have been content with spending their weekends golfing, swimming, fishing, or, perhaps, actively participating in a torrid game of croquet.

Just recently, many of these same sportsmen have been enjoying a new pastime—if it can be termed that. Some call it skydiving. Many call it parachuting. Still others call it crazy.

Last year more than 3,000 men, women, boys and girls in the United States were active in this exciting new sport. Weekend parachuting clubs have been organized in Seattle, Cincinnati, New Orleans, San Francisco and 70 other U. S. localities. Members range from business executives to women librarians to proteges of Marlon Brando who have become bored with their motorcycles. Philadelphia boasts of an honor roll college student who has never gone up in an airplane without leaving it in mid-air.

It is not unusual in Orange, Massachusetts, where more than 700 jumpers are members of the Sport Parachuting Center, to see proud parents munching a box lunch and looking skyward while their son, who has just passed his 16th birthday, prepares to jump from an airplane at an altitude of 7,000 feet. All skydiving candidates must certify that they are in good health, and all persons under 21 years of age must have written parental consent.

On any given Sunday afternoon, hundreds of skydivers will step from planes, stand on small platforms and grasp the wing struts. Then, with a heavy push, they'll leap from the planes with their backs arched, arms and legs outstretched and make like birds. They'll drop for thousands of feet at a speed of 125 mph. About 2,200 feet from the ground, they'll pull the rip cords of their parachutes and float gracefully to earth.

One expert jumper compares skydiving to writing poetry, referring to it as "a high form of human expression." Skydiving, most jumpers agree, gives the participant a feeling of complete freedom without breaking the law.

As dangerous as the sport appears, the safety record of members of the Parachute Club of America has been excellent. In the more than 6,000 jumps by members of the PCA's Orange, Massachusetts, and Hemet, California, centers, only 17 injuries have occurred, none involving lengthy hospitalization or extensive disability. One of the most commendable records among PCA affiliates is held by the United States Military Academy Skydiving Club at West Point. Under the direction of Captain George M. Gividen, the academy's cadet team was organized two years ago and this year won the National Intercollegiate Sport Parachute championship.

Captain Gividen's students have made more than 2,800 free-fall, delayed-opening parachute jumps with only four minor injuries — three sprained ankles and one pulled ligament. Gividen credits West Point's excellent safety record to the intensive training and mandatory safety equipment that each student receives. Part of this equipment is a new automatic reserve parachute opening device. If for any reason there is a malfunction in the main chute or if the jumper fails to pull the rip cord, the automatic chute pops open at an altitude of 1,000 feet.

Gividen describes skydiving as a very emotional experience, in which the chance of freezing or panicking during a fall confronts the jumper. But Gividen has made about 60 jumps this year with one injury—a slightly skinned elbow. The West Point captain, who lost his left leg below the hip during the Korean War and wears a brace on his right foot, points out that women—including his wife—are active in skydiving. One of the fairer sex placed 13th in the national championship at Fort Bragg, North Carolina. She was competing against 48 of the best male parachutists in the country.

Philadelphia Daily News

If one-legged men and delicate women can parachute without injuries, Gividen said, then it can't be such a dangerous sport.

Jacques Andre Istel, who operates the PCA center at Orange, Massachusetts, and is considered the dean of American skydivers, concedes that parachuting has an element of danger. However, Istel feels there is no excuse for the number or type of fatalities occurring today.

Of the 12 skydiving fatalities recorded so far this year, none was the fault of a mechanical malfunction. Rather, they were a mixture of recklessness and negligence. One parachutist, who drowned in a river after jumping under strong wind conditions, failed to drop a wind drift indicator. The maximum ground wind for

This is view skydiver gets shortly after jumping from plane. Parachutist here is performing perfect spread-eagle free-fall style. By arching his back and moving his arms and legs, he is able to direct descent.

After a free-fall of more than 5,000 feet, skydiver pulls rip cord at altitude of 2,200 feet and floats gracefully down to earth. This parachutist is about to land directly on predetermined ground target.

U. S. Military Academy Skydivers

a jump is 8 mph for a student and 15 mph for a parachutist. Two jumpers recently plunged to their deaths on their first free falls—neither one having pulled his rip cord.

Four of the twelve deaths have occurred in California, where anyone can jump any way so long as a few federal aviation rules are kept. Leaders of the PCA cringe at mention of California, where children as young as 10 years of age leap out of planes without benefit of the proper skydiving instruction.

In contrast to California, New York outlaws the sport of parachuting. The state legislature passed a bill earlier this year revoking a 1923 "barnstorming" law which banned parachuting, except on the state's military reservations. But Governor Rockefeller vetoed the bill after writing to Istel for advice. Istel recommended that the bill be vetoed until proper safety requirements were introduced with it. The governor has stated that he will sign the bill when it is resubmitted with these requirements.

Skydiving properly done is not only safe but also a feat of great skill. Veteran jumpers compete in two major areas—accuracy in landing near a predetermined target, and style during their free falls. Two experienced skydivers in a free fall can close in on one another and pass a baton back and forth before pulling the rip cord. Using their arms and legs as their steering apparatus, the divers can maneuver through the air with the ease of a bird.

PCA-organized clubs insist upon a thorough training period in which each student must prove to his instructor that he is fully prepared to make his first free fall. Each candidate is given a lecture on parachuting theory and is instructed in the proper exit from the plane. He is then given a strict course on the correct way to make a tumbling fall when hitting the ground. Only after this basic instruction is well understood is the student permitted to go up for his first static line jump.

Accompanying the student is his instructor, called the jumpmaster, who checks the static line, wind velocity and guides the pilot to the proper jump point. The static line is a heavy canvas belt about 10 feet in length which is fastened to the student's parachute. When the student leaves the plane, the jumpmaster holds the line, which automatically opens the chute after a 10 foot fall. Most clubs insist upon five static line jumps before the first free fall.

Because of the strict safety precautions adhered to by the PCA, the organization has had no problem in obtaining insurance for all of its members. The policies include coverage for death, long term disability, medical expenses, public liability and property damage while parachuting. The premium is paid by the PCA from each individual's $15 annual membership fee.

Insurance executives, realizing that skydiving is rapidly becoming more and more popular, have made detailed studies of the sport. Howard A. Nelson, assistant secretary of John Hancock Mutual Insurance Company, suggests that underwriters consider experience, type of license, areas where skydivers jump and whether they participate in accordance with the rules of the Parachute Club of America.

Istel's Massachusetts skydiving center will gain international prominence in 1962 when it will be host to the Sixth World Sport Parachuting Championship. Governor Foster Furcolo has assured Istel of the state's wholehearted support of the event, the first to be held in this country.

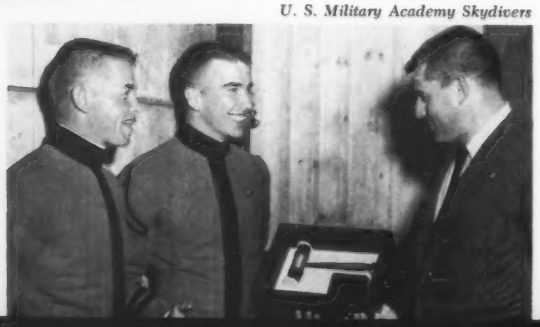
So, whether it's called skydiving, parachuting or crazy, the odds are good that this exciting new sport may someday become as harmless as ping-pong. Istel and Gividen hint that it already is. ⊙

Wide World

Ilona Berger, an employee of a Toronto insurance firm, is one of many young women who enjoy the sport of skydiving. Miss Berger has 150 free-fall jumps to her credit with no mishaps.

Two members of the West Point parachuting club receive the Gavin Gavel from Jacques Istel, initiator of skydiving in U. S. Trophy is awarded annually to the intercollegiate champions.

U. S. Military Academy Skydivers



PEARSON OF WEST VIRGINIA

Head of the Mountain State's rapidly growing insurance industry since 1958 is Commissioner C. Judson Pearson.

TAKE 10 MILLION acres of forests, mix with hundreds of mountain peaks, an abundance of natural resources and a complex of industry. The result is West Virginia, one of our most beautiful and energetic states.

In 1863, when West Virginia was admitted to the Union, the state was one vast forest sprinkled with tiny villages. Red spruce, hemlock, birch and balsam fir covered the Mountain State's higher elevations while at the lower levels grew a carpet of chestnut, oak, hickory, maple and walnut trees.

Nearly 100 years later, through careful programing by the West Virginia Conservation Commission, the state today has nearly two-thirds of its total land area in timber. About a million acres are designated as national forests and another 120,000 acres as state parks and forests. The bulk of today's tree crop, however, is privately owned.

West Virginia gets its nickname, the "Mountain State," from the 115 peaks of more than 4,000 feet and 381 others above 2,000 feet.

Since 1931, West Virginia has led the country in the production of bituminous coal and has coal reserves predicted to last another 400 years. Geologists estimate that the state has 160 billion tons of coal with but a few billion tons already mined. In total mineral production, West Virginia ranks fourth in the nation, second as a glass producer and is among the leaders in production of hardwood timber.

The rich Ohio River Valley, in the northwestern part of the state, is rapidly becoming known as "The American Ruhr." This valley, coupled with those of the Kanawha and Monongahela Rivers, has boosted the state's economy to where state officials feel they may soon give West Virginia undisputed leadership in the production of aluminum, chemicals and chemical by-products, steel, coal and glass.

A leader in the national insurance picture is C. Judson Pearson, Commissioner of Insurance of West Virginia since 1958. Pearson is vice chairman of the Fire, Marine, Casualty and Surety Committee of the National Association of Insurance Commissioners. He is also a member of the Accident and Health, Law and Rates and Rating Organizations Committees of the NAIC. Last year Pearson was reappointed insurance commissioner of his state for a six year term.

West Virginia has 673 licensed insurance companies employing some 10,000 agents. In 1958 these companies wrote more than $200 million in direct premiums, compared with $43 million 20 years earlier.

Commissioner Pearson, a lifelong resident of West Virginia, attended Washington and Lee University, West Virginia University and was graduated from West Virginia University's College of Law in 1949. His education was interrupted during World War II, when he served as a bomber pilot in the U. S. Army Air Force.

Before his appointment as insurance commissioner, Pearson practiced law and served as police judge of St. Albans, a small town northwest of Charleston, the state capital.

In addition to being active in the NAIC and the Federation of Insurance Counsel, Pearson is a member of the American Bar Association, Phi Delta Phi legal fraternity and the Sigma Chi social fraternity. ⊙

Topped by a towering golden dome, West Virginia's state capitol in Charleston is one of the nation's most beautiful.